

# LEVEL STRUCTURE OF $^{104}\text{Ag}^*$

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The high spin states of  $^{104}\text{Ag}$  have been populated with the  $^{72}\text{Ge}(^{35}\text{Cl}, 2\text{pn}\gamma)^{104}\text{Ag}$  reaction using a 135 MeV  $^{35}\text{Cl}$  beam bombarding a  $^{72}\text{Ge}$  target backed by 15  $\text{mg}/\text{cm}^2$  gold, and investigated with GAMMASPHERE at ATLAS. The proposed level scheme is shown in Fig.1. Two new positive parity bands decaying predominantly by M1 transitions have been observed and the previously known negative parity M1 band has been extended further up in energy and spin. The weak E2 crossover transitions, along with the absence of broadened lineshapes, indicate that these bands are associated with small deformation. From the comparison between TAC, CNS calculations and the experimental results the configuration associated with band (1) is tentatively assigned as  $\pi(g_{9/2})^{-3} \otimes \nu(h_{11/2})^2$  with a tilt angle  $\vartheta \sim 75^\circ$  and deformation parameter  $\varepsilon_2 \sim 0.17$  at  $\hbar\omega = 0.30$  MeV. For bands (2) and (3), the configurations are tentatively assigned as  $\pi(g_{9/2})^{-3} \otimes \nu(h_{11/2})^1$  ( $\vartheta \sim 70^\circ, \varepsilon_2 \sim 0.19$ ) and  $\pi(g_{9/2})^{-3}$  ( $\vartheta \sim 55^\circ, \varepsilon_2 \sim 0.15$ ), respectively. The lack of signature splitting in these bands, combined with the above arguments, has led to an interpretation that the “shears mechanism” [1,2] is the major source of angular momentum gain for these dipole bands.

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[1] R. M. Clark and A. O. Macchiavelli, *Annu. Rev. Nucl. Part. Sci.* 50, 1 (2000).

[2] S. Frauendorf, *Rev. Mod. Phys.* 73, 463 (2001).

